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INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(51) International Patent Classification 6 : G06F 17/60 | A2

(11) International Publication Number: **WO 99/24928**

(43) International Publication Date: 20 May 1999 (20.05.99)

(21) International Application Number: PCT/US98/23648

(22) International Filing Date: 6 November 1998 (06.11.98)

(30) Priority Data:
08/965,185 6 November 1997 (06.11.97) US

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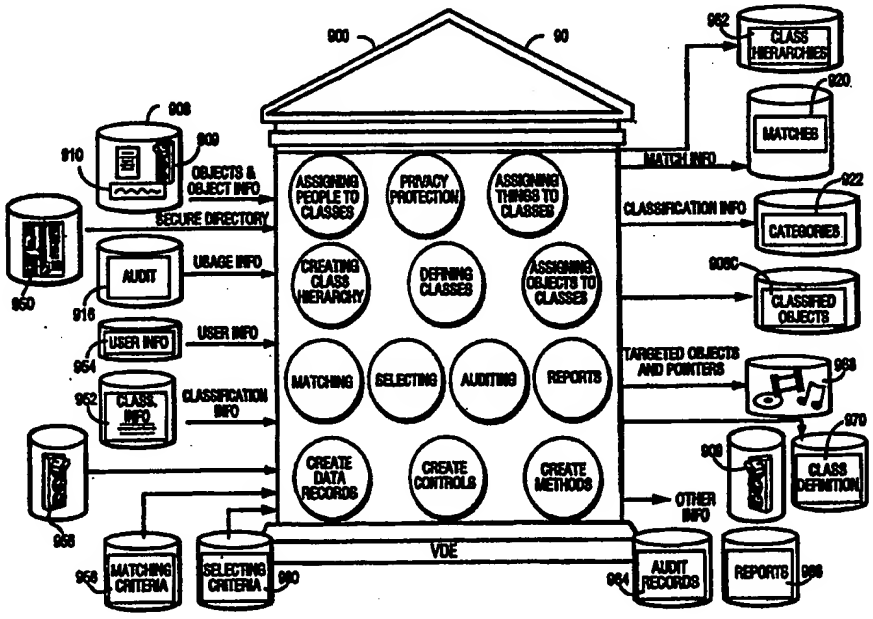
(81) Designated States: AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CU, CZ, DE, DK, EE, ES, FI, GB, GE, GH, GM, HR, HU, ID, IL, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, UA, UG, UZ, VN, YU, ZW, ARIPO patent (GH, GM, KE, LS, MW, SD, SZ, UG, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG).

Published
*Without international search report and to be republished upon receipt of that report.*

(54) Title: SYSTEMS AND METHODS FOR MATCHING, SELECTING, NARROWCASTING, AND/OR CLASSIFYING BASED ON RIGHTS MANAGEMENT AND/OR OTHER INFORMATION

(57) Abstract

Rights management information is used at least in part in a matching, narrowcasting, classifying and/or selecting process. A matching and classification utility system comprising a kind of Commerce Utility System is used to perform the matching, narrowcasting, classifying and/or selecting. The matching and classification utility system may match, narrowcast, classify and/or select people and/or things, non-limiting examples of which include software objects. The Matching and Classification Utility system may use any pre-existing classification schemes, including at least some rights management information and/or other qualitative and/or parameter data indicating and/or defining classes, classification systems, class hierarchies, categroy schemes, class assignments, category assignments, and/or class membership. The Matching and Classification Utility may also use at least some rights management information together with any artificial intelligence, expert system, statistical, computational, manual, or any other means to define new classes, class hierarchies, classification systems, category schemes, and/or assign persons, things, and/or groups of persons and/or things to at least one class.



US006112181A

# United States Patent [19]

Shear et al.

[11] Patent Number: 6,112,181

[45] Date of Patent: Aug. 29, 2000

Please see this US Patent equivalent for drawings and disclosure.

[54] **SYSTEMS AND METHODS FOR MATCHING, SELECTING, NARROWCASTING, AND/OR CLASSIFYING BASED ON RIGHTS MANAGEMENT AND/OR OTHER INFORMATION**

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[21] Appl. No.: **08/965,185**

[22] Filed: **Nov. 6, 1997**

[51] **Int. Cl.**[7] ..... **G06F 17/60**

[52] **U.S. Cl.** ..... **705/1**

[58] **Field of Search** ..... 705/1, 10, 14, 705/40, 400; 707/9, 10; 380/4

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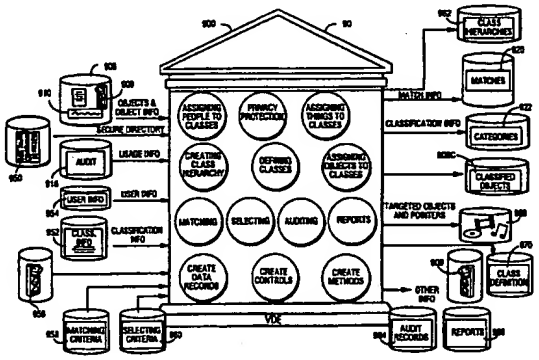
[57] **ABSTRACT**

Rights management information is used at least in part in a matching, narrowcasting, classifying and/or selecting process. A matching and classification utility system comprising a kind of Commerce Utility System is used to perform the matching, narrowcasting, classifying and/or selecting. The matching and classification utility system may match, narrowcast, classify and/or select people and/or things, non-limiting examples of which include software objects. The Matching and Classification Utility system may use any pre-existing classification schemes, including at least some rights management information and/or other qualitative and/or parameter data indicating and/or defining classes, classification systems, class hierarchies, category schemes, class assignments, category assignments, and/or class membership. The Matching and Classification Utility may also use at least some rights management information together with any artificial intelligence, expert system, statistical, computational, manual, or any other means to define new classes, class hierarchies, classification systems, category schemes, and/or assign persons, things, and/or groups of persons and/or things to at least one class.

**220 Claims, 96 Drawing Sheets**



WE CLAIM:

1. A method including:

(a) determining at least one class, class hierarchy, classification scheme, category or category scheme;

(b) assigning cases, persons, and/or things to said determined class, class hierarchy, classification scheme, category or category scheme; and

(c) selecting and/or matching cases, persons, and/or things based at least in part on said class, class hierarchy, classification scheme, category or category scheme and/or said assignment,

wherein at least one of said steps (a)-(c) includes the step of using at least some rights management information.

2. A method as in claim 1 wherein said using step includes using at least one control set.

3. A method as in claim 1 wherein said using step includes using at least some information for controlling use of digital information.

4. A method as in claim 1 wherein said using step includes using at least some information for controlling at least one transaction.

5. A method as in claim 1 wherein said using step includes using at least some information for controlling at least one event.

6. A method as in claim 1 wherein said using step includes using at least some information for controlling at least one consequence of digital information use.

7. A method as in claim 1 wherein said using step includes using at least some information for controlling at least one consequence of at least one event.

8. A method as in claim 1 wherein said using step includes the step of using at least some information for controlling at least one consequence of at least one transaction.

9. A method as in claim 1 wherein said using step includes using at least some information outputted by a rights management process.

10. A method as in claim 1 further including the step of outputting at least some rights management information.

11. A method as in claim 1 wherein at least one of steps (a)-(c) includes using at least one secure container.

12. A method as in claim 1 wherein at least one of steps (a)-(c) includes using at least one protected processing environment.

13. A method as in claim 1 further including the step of using at least one of the techniques set forth at pages 60-82 of this specification.

14. A method as in claim 1 wherein said using step includes using at least one or more rules and/or their consequences.

15. A method as in claim 1 wherein at least one of steps (a) and (b) includes at least one of the following steps:

(a) using at least one statistical technique identifying at least one cluster of cases sharing similar profiles and/or features;

(b) using numerical taxonomy;

(c) using at least one of cluster analysis, factor analysis, components analysis, and other similar data reduction/classification technique;

(d) using at least one pattern classification technique, including components analysis and neural approaches;

(e) using at least one statistical technique that identifies at least one underlying dimension of qualities, traits, features, and/or characteristics, and assigning parameter data indicating the extent to which a given case has, possesses, and/or may be characterized by the underlying dimension, factor, class, and/or result in the definition of at least one class and/or the assignment of at least one case to at least one class;

(f) using at least one statistical method employing fuzzy logic and/or fuzzy measurement and/or whose assignment to at least one class entails probabilities different from 1 or zero;

(g) using a Baysian statistical classification techniques that uses an estimate of prior probabilities in determining class definitions and/or the assignment of at least one case to at least one class;

(h) using at least one statistical and/or graphical classification and/or data reduction method that uses rotation of reference axes, regardless of whether orthogonal or oblique rotations are used;

(i) using at least one statistical method for two and three way multidimensional scaling; and

(j) using at least one knowledge based approach to classification.

16. A system including:

an automatic class generator that generates at least one class, class hierarchy, classification scheme, category or category scheme;

an automatic class assigner that assigns cases, persons and/or things to said determined class, class hierarchy, classification scheme, category or category scheme; and

at least one further component for automatically searching, selecting and/or matching cases, persons, and/or things based at least in part on said class, class hierarchy, classification scheme, category or category scheme and/or said assignment,

wherein said system uses at least some rights management information.

17. A system including:

first means for determining at least one class, class hierarchy, classification scheme, category or category scheme;

second means for assigning cases, persons, and/or things to said determined class, class hierarchy, classification scheme, category or category scheme; and

third means for selecting and/or matching cases, persons, and/or things based at least in part on said class, class hierarchy, classification scheme, category or category scheme and/or said assignment,

wherein at least one of said first, second and third means uses at least some rights management information.

18. A Commerce Utility System providing a secure execution space, the Commerce Utility System performing at least one component based service function including at least one secure component for execution within the secure execution space, the Commerce Utility System including a communications facility permitting communication of secure control information with at least one electronic community participant,

wherein said component based service function uses at least one class based at least in part on rights management information.

19. A Commerce Utility System as in claim 18 wherein the component based service function assigns at least one member to at

least one class based at least in part on some rights management information.

20. A Commerce Utility System as in claim 18 wherein the component based service function matches persons and/or things based at least in part on at least some rights management information.

21. A Commerce Utility System as in claim 18 wherein the component based service function selects persons and/or things based at least in part on at least some rights management information.

22. A Commerce Utility System as in claim 18 wherein the component based service function narrowcasts information to recipients based at least in part on at least some rights management information.

23. A system or method including:

a computer network and

a control arrangement within the network that determines and/or uses at least one of the following through use of rights management information:

(a) class hierarchy,

(b) class structure,

(c) classification scheme,

(d) category, and

(e) category scheme.

24. A class-based system including at least one computer that processes digital information, said system including at least one element that uses at least some rights management information.

25. A method of operating a class-based system including at least one computer that processes digital information, said method including the step of using at least some rights management information.

26. A system for assigning at least one thing or person to at least one class including at least one computer that processes digital information, said system including at least one element that uses at least some rights management data in making said assignment.

27. A system for making and/or using at least one class-based assignment including at least one computer that processes digital information, said system including at least one element that uses at least some rights management information.

28. A system for clearing at least one transaction including at least one computer that processes digital information, said system including at least one element that uses at least one class defined, assigned, selected, and/or matched based at least in part on rights management information.

29. A method for authorizing at least one computer and/or computer user including the step of using at least one class defined,

assigned, selected, and/or matched based at least in part on rights management information.

30. A method for authorizing at least one electronic transaction including the step of using at least one class defined, assigned, selected, and/or matched based at least in part on rights management information.

31. A method for initiating and/or performing at least one at least in part secure electronic transaction including the step of using class related information defined, assigned, selected, and/or matched based at least in part on rights management information.

32. An information processing method including the steps of:

securely charging a fee; and

conditioning said charging step at least in part on at least one class defined, assigned, selected, and/or matched based at least in part on rights management information.

33. A method for securely exchanging digital information including the step of at least in part defining, assigning, selecting, and/or matching at least one class based at least in part on rights management information.

34. A method for performing at least one rights operating system based transaction including the step of defining, assigning,

selecting, and/or matching at least one class based at least in part on rights management information.

35. A method for performing at least one protected processing environment operation including the step of defining, assigning, selecting, and/or matching at least one class based at least in part on rights management information.

36. A method of pushing information including the steps of classifying recipients and/or information to be sent to said recipients based at least in part on rights management information, and selecting said information to distribute to said recipients based at least in part on said classifying.

37. A method of pushing information including the steps of classifying recipients and/or information to be sent to said recipients based at least in part on rights management information, and matching at least a portion of said information with at least one class of said recipients based at least in part on said classifying.

38. A method of pushing information as in claim 37 further including the step of creating a classification scheme and/or hierarchy using at least some rights information.

39. A method of pushing information as in claim 37 further including the step of assigning at least some information and/or at least one recipient to a class or category, said assignment based at least in part on rights management information.

40. A subject switch for matching subscribers and/or recipients desiring information in one or more classes with one or more sources of information, wherein the subject switch matches at least one subscriber and/or participant with at least one information source on a mapping based at least in part on rights management information.

41. A subject switch as in claim 40 wherein said information source:

selects at least some information, said selection based on at least one class, and wherein said assignment of said at least some information to said at least one class is based at least in part on rights management information; and

sends at least some said selected information to said subscriber in accordance with said subscriber's subscribing to said class of information.

42. A subject switch as in claim 40 wherein at least one of said subject switch, said subscriber and/or participant and said information source includes at least one computer providing a protected processing environment.

43. A subject switch as in claim 40 wherein at least one subscriber and/or participant uses rights management information at least in part to persistently subscribe to at least some information provided by at least one information source.

44. A subject switch as in claim 40 wherein the subject switch includes means for using at least one class definition for said mapping.

45. A subject switch as in claim 40 wherein the subject switch includes means for responding to a subscriber and/or participant request by providing information indicating information sources in at least one specified or desired class.

46. A subject switch as in claim 40 further including a messaging service for use by at least two of said subject switch, said subscriber and/or participant and said information source and/or participant to communicate electronically.

47. A subject switch as in claim 46 wherein said electronic communications uses at least one secure container.

48. A subject switch as in claim 40 wherein at least one of said subject switch, subscriber, or information source uses at least one control set associated with at least some information received by at least one subscriber.

49. A digital narrowcasting arrangement comprising:

a computer; and

at least one classifying element used to select content to narrowcast to recipients based at least in part on rights management information.

50. A digital narrowcasting arrangement as in claim 49 wherein the classifying element classifies at least one of (a) a recipient, and (b) content, based at least in part on rights management information.

51. A digital narrowcasting arrangement as in claim 49 wherein said classifying element defines at least one class using at least some rights management information.

52. A digital narrowcasting arrangement as in claim 49 wherein the classifying element assigns at least some content to at least one class, said assignment based on at least some rights management information.

53. A digital narrowcasting arrangement as in claim 49 wherein the classifying element defines at least one class based at least in part on content selections previously made by the recipients and/or profiles generated based at least in part on recipient input.

54. A digital narrowcasting arrangement as in claim 49 wherein the classifying element sends a content request including classification data and destination information to at least one provider.

55. An information distribution system including: a computer network; and a selection arrangement that selects information for use by individual recipients using classes based at least in part on rights management information.

56. An information distribution system as in claim 55 wherein the system further includes a classifying element that determines at least one class of content and/or service of interest to at least one recipient.

57. An information distribution system as in claim 56 wherein said classifying element defines at least one class using at least some rights management information.

58. An information distribution system as in claim 56 wherein said classifying element assigns at least some content to at least one class, said assignment based on at least some rights management information.

59. An information distribution system as in claim 55 wherein the system includes means for allowing the user to choose to receive the selected information.

60. An enterprise information system including a computer system for classifying employees, said system including at least one rights management component that distributes information to the employees based at least in part on employee classification.

61. An enterprise information system as in claim 60 wherein the computer matches the information to employees based at least in part on the employee classification.

62. An enterprise information system as in claim 60 wherein the employee classification is used to gather information for

employees without revealing substantial information concerning individual employees.

63. A method for conducting a chain of handling and/or control including the steps of allowing plural parties to contribute rules and/or consequences, and performing at least one classification based at least in part on said rules and/or consequences.

64. A method as in claim 63 wherein at least some of said contributed rules and/or consequences are class based.

65. A method as in claim 63 wherein at least one of said parties modifies at least one of said rules and/or consequences based at least in part on class.

66. A method as in claim 63 including the step of generating class assignments based at least in part on said rules and/or consequences, and sending said class assignments to at least one clearinghouse.

67. A method as in claim 63 including the step of classifying said rules and/or consequences to provide at least one class, and fulfilling at least one request by selecting based on said class.

68. A directory services system for classifying confidential information, the system including:

a communications component that receives directory requests; and

a response component that uses said classification to respond to

directory requests while preserving confidentiality of said confidential information.

69. A directory services system as in claim 68 wherein said response component uses at least one classification process to classify items in a directory, and uses results of the classification process, at least in part, to respond to directory requests.

70. A directory services system as in claim 68 wherein said response component sends information to destinations revealed by the results of the classification process without revealing at least some information concerning said destinations to the information source.

71. A microsegmented merchandising technique including the steps of performing classification based at least in part on usage data and/or lifestyle profiles, and distributing offers for products and/or services based at least in part on the classification.

72. A microsegmented merchandising technique as in claim 71 wherein the performing step includes defining at least one class hierarchy based at least in part on rights management information.

73. A microsegmented merchandising technique as in claim 71 further including the step of combining plural offers for different products and/or services based at least in part on said classification.

74. A trading network including:

a communications element for communicating digital signals; and

means for matching value chain participants through a classification based at least in part on rights management information.

75. A trading network as in claim 74 further including means for defining at least one class hierarchy based at least in part on rights management information.

76. A trading network as in claim 74 further including means for determining class membership based at least in part on action and/or information provided by at least one value chain participant.

77. A trading network as in claim 74 wherein said matching means includes means for at least in part performing at least one electronic negotiation.

78. A securities trading method including the step of performing a classification process at least in part using at least one rights management element, and using the classification process to select securities for trade.

79. A securities trading method as in claim 78 wherein said classification process includes defining at least one class hierarchy based at least in part on rights management information.

80. A currency/debt trading system including:

a currency or debt trading computer; and

an arrangement coupled to said computer that performs at least

one classification process based at least in part on rights management information.

81. A currency/debt trading system as in claim 80 wherein said arrangement includes means for defining at least one class hierarchy based at least in part on rights management information.

82. A currency/debt trading system as in claim 80 wherein the arrangement uses classification to maximize return or minimize loss.

83. A financial institution selection system including a computer that classifies financial institutions based at least in part on rights management information.

84. A software distribution method including the steps of generating class information based at least in part on rights management information, and selecting software to be distributed and/or recipients who are to receive distributed software based at least in part on class information.

85. A software distribution method as in claim 84 wherein said generating step includes defining a class hierarchy using at least some rights management information.

86. A software distribution method as in claim 84 wherein the selecting step includes selecting software to be distributed by classifying the software based at least in part on rights management information associated with the software.

87. A software distribution mehtod as in claim 80 wherein the selecting step includes selecting recipients to receive software based at least in part on usage information provided by a rights management process.

88. A classification technique including the step of authenticating class membership based at least in part on digital credentials and/or certificates.

89. A classification technique as in claim 88 wherein said digital credentials are digital certificates.

90. A classification technique as in claim 88 wherein said digital credentials are digital membership cards.

91. A classification technique as in claim 88 further including the step of deciding class membership based at least in part on rights management information.

92. A classification technique as in claim 88 further including the step of classifying at least one of users, nodes, devices, networks, servers, clients and services based at least in part on rights management information.

93. A classification technique as in claim 88 further including the step of conditioning at least one rights management process at least in part on authenticated class membership.

94. A computer system including:

a first arrangement that generates class-based controls to participants based at least in part on class and/or class-based assignments; and

a second arrangement that allows participants to interact with information and/or one another at least in part using said class-based controls.

95. A computer system as in claim 94 further including means for using said class-based controls to limit participants' access to information and/or services based on participants' classes.

96. A health care computer system including an arrangement for issuing health care workers, administrators and insurers class-based digital credentials and/or certificates, wherein the digital information sent to said health care workers and administrators includes class-based controls that condition use and/or access to information based at least in part on said class-based digital credentials and/or certificates.

97. A health care computer system as in claim 96 further including means for allowing said health care workers, administrators and insurers sharing a common object subject to class-based controls to have access to different portions of the object based at least in part on said class-based controls.

98. A work process automation system including a matching and/or classification computer that matches tasks to resources based at least in part on assigning classifying the tasks and/or the resources to at least one class.

99. A work process automation system as in claim 98 wherein said matching and/or classification computer includes means for defining at least one class hierarchy based at least in part on rights management information.

100. A work process automation system as in claim 98 wherein said matching and/or classification computer includes means for matching based at least in part on rights management information.

101. An automatic governmental and/or societal rights supporting system including a matching and/or classification computing element that assigns and/or classifies entities to at least one class based at least in part on rights management information.

102. An automatic governmental and/or societal rights supporting system as in claim 101 wherein the matching and/or classification computing element includes means for defining a class hierarchy based at least in part on rights management information.

103. An automatic governmental and/or societal rights supporting system as in claim 101 wherein the matching and/or classification computing element includes means for classifying entities based on at least one of the following:

tax status;

right to receive certain information;

right to engage in certain transactions; and

jurisdiction.

104. An automatic taxing authority computer including means for issuing tax class control sets based at least in part on tax-based class definitions, and means for using said tax control sets at least in part to collect and/or enforce taxation.

105. A method for adaptively presenting information differently to different participants, including associating said participants with classes, and controlling presentation based at least in part on class-based control sets included within the information.

106. A method as in claim 105 further including using said class-based control sets to match participants with different portions of said information.

107. A method as in claim 105 further including using said class-based control sets to change the form in which information is presented based at least in part on said classes.

108. A method as in claim 105 further including the step of operating said class-based control sets based at least in part on metadata associated with different portions of said information.

109. A method as in claim 105 further including selecting said class-based control sets between different images for

presentation based at least in part on one or more classes associated with a participant.

110. A method as in claim 105 further including using said class-based control sets to emphasize certain portions of said information over other portions in said presentation based at least in part on one or more classes associated with a participant.

111. A method as in claim 105 further including using at least one computer having a protected processing environment.

112. A method for adaptively presenting information differently to different participants including:

classifying the different participants based on capability; and

using class-based control sets associated with said information to change the difficulty of the presentation based at least in part on said classification.

113. A method as in claim 112 wherein the different recipients are classified based on grade level.

114. A method as in claim 112 including the step of changing the vocabulary and/or syntactical complexity of the presentation based at least in part on said classification.

115. A method as in claim 112 further including the step of using said class-based control sets to ensure that in at least some cases, recipients in different classes pay different levels of compensation for said presentation.

116. A method for adaptively presenting information differently to different participants including:

classifying different participants based on capability, and

using class-based control sets associated with said information to change the language of the presentation based at least in part on said classification.

117. An information searching mechanism including a matching computer element that classifies information based at least in part on rights management information, said computing element including means responsive to user requests to search for information based at least in part on said classification.

118. An information searching mechanism as in claim 117 wherein said matching computer element further includes means for assigning information to classes based at least in part on rights management information.

119. An information searching mechanism as in claim 117 wherein said matching computer element includes means for scoring information based at least in part on user indicated parameters.

120. An information searching mechanism as in claim 117 wherein said matching computer element includes means for responding to at least some user requests by providing Universal Resource Locator designations of where information can be found.

121. An information handling method including the step of using class-based controls to control support extraction and/or aggregation of information.

122. An information handling method as in claim 121 further including using a computing element to extract information from plural objects based at least in part on class-based criteria.

123. An information handling method as in claim 121 further including using a computing element to aggregate information based at least in part on class-based criteria.

124. An information handling method as in claim 121 further including using said class-based controls to represent nested or multi-level classifications.

125. An information classification method including the step of generating at least one class hierarchy from other plural classification hierarchies based at least in part on rights management information and/or class-based rights management information based at least in part on classification metadata.

126. An information classification method as in claim 125 further including basing said other plural classification hierarchies at least in part on object metadata.

127. An information classification method as in claim 125 further including specifying said classification object metadata

specified classifications based on at least one of location, name, prices, permissions, ISSN, title, author, publisher and/or date.

128. An information classification method as in claim 125 further including generating said class-based rights management information by classifying classes.

129. An electronic gambling system including a computer that matches gamblers with plural gambling providers based at least in part through classifying the gambling providers using rights management information.

130. An electronic gambling system as in claim 129 wherein the computer includes means for classifying the gamblers based at least in part on rights management information.

131. An electronic gambling system as in claim 129 wherein the computer includes at least one protected processing environment.

132. An electronic gambling system as in claim 129 wherein the computer uses at least one control set to classify, select and/or match at least one of said gambling providers, and/or gamblers.

133. An electronic ticketing system including a computer that matches recipients with tickets to events through classifying said recipients, said system including a computer that matches tickets and/or said events based at least in part on rights management information.

134. An electronic ticketing system as in claim 133 wherein a recipient provides a request containing event and rights management criteria, and the computer matches the recipient with a provider based at least in part on said classifying process.

135. An electronic ticketing system as in claim 133 wherein the rights management information includes method of payment information.